REMARKS

Receipt of the complimentary copy of the Office Action, originally mailed December 23, 2002, is acknowledged. Applicants respectfully request revival and reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

A detailed listing of all of the claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

Claims 1, 2, 5, and 6 are currently being amended.

Claim 3 is currently being cancelled.

Claim 27 is currently being added. Support for this claim is located on page 7, ll. 10-19 of the specification.

After amending the claims as set forth above, claims 1-27 are pending for consideration in this application. Claims 11-26 have been withdrawn from consideration and claims 1-10 and 27 are presented for consideration. The sole objection of record is with respect to claim 5, based on a misspelling of the term "poly(caprolactone)." There are several rejections of record. The Examiner rejected claim 6 as allegedly being indefinite under 35 U.S.C. § 112, ¶ 2. Claims 1-4 and 7-10 stand rejected under 35 USC § 102(a) & (e) as allegedly being unpatentable over United States Patent No. 5,630,796 ("Bellhouse"). Claims 1-8 stand rejected under 35 USC § 102(a) & (e) as allegedly being unpatentable over United States Patent No. 5,874,064 ("Edwards"). Claims 1-4 and 6-10 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Bellhouse. Claim 5 stands rejected under 35 USC § 103(a) as allegedly being unpatentable over Bellhouse in view of United States Patent No. 4,530,840 ("Tice"). Finally, claims 1-8 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Edwards. Applicants respectfully traverse these rejections.

I. Examiner's Objection

The Examiner objects to claim 5, based on a misspelling of the term "poly(caprolactone)." In response, applicants amended the claim to correct the spelling. This amendment is not a narrowing amendment related to patentability; rather, it is intended to be, and should be considered as, a correction of a typographical error.

II. Claim 6 is Definite

The Examiner rejected claim 6 for indefiniteness, contending that it is unclear from the language of the claim what the applicants intend to convey. Without acquiescing in the rejection and without intending to abandon claimed subject matter but to expedite allowance, claim 6 has been amended in order to clarify the meaning of the claim language. This amendment is not a narrowing amendment related to patentability; rather, it is intended to be, and should be considered as, a clarification of the claim language. Support for this amendment can be found in original claim 6 and at page 7, ll. 5-19 of the present specification.

III. The Claims are Novel Over the Prior Art

Bellhouse

Claims 1-4 and 7-10 stand rejected as allegedly being anticipated by Bellhouse. The Examiner contends that Bellhouse discloses drug-containing particles that are delivered through a needleless syringe, where the particles comprise a therapeutic agent in controlled doses into the skin and where the particles have a particle size in the range of 0.1 to 250 microns, a diameter of up to 100 microns, and a density in the range of 0.1 to 25 g/cm^3.

Without acquiescing in the rejection and without intending to abandon claimed subject matter but solely to expedite allowance, claim 1 is amended to recite a "biodegradable" sustained-release material. Support for this amendment can be found at page 6, ll. 5-6 of the specification. A determination that a claim is anticipated under 35 U.S.C. § 102 requires a finding that "each and every limitation is found either expressly or inherently in a single prior at reference." *Celeritas Techs. Inc. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1360 (Fed. Cir. 1998).

Bellhouse does not disclose or teach particulate compositions composed of a biological active agent in association with a biodegradable sustained-release material, such as a poly(lactide), poly(glycolide), poly(caprolactone), poly(hydroxybutyrate), poly(lactide-co-glycolide) and poly(lactide-co-caprolactone). In addition, the passage at column 4, lines 13-25 of Bellhouse says that the particles "could" be tiny spherical shells and that "if" the encapsulating shell has a controlled permeability, this "may" provide an additional means of providing a slow drug release rate after delivery. However, that is speculation. It does not follow that the encapsulating shell must be composed of a biodegradable sustained-release material as claimed in claim 1.

Thus, Bellhouse does not disclose each and every claimed element. As a result, it does not anticipate the particulate composition set forth in claim 1. Since claims 2, 4, and 7-10 depend from claim 1, for at least this reason, these claims are patentable over Bellhouse. In addition, claim 3 has been cancelled without intent to abandon claimed subject matter, but solely to expedite allowance. The rejection, with respect to claim 3, therefore is moot.

Edwards

Claims 1-8 stand rejected under 35 USC § 102(a) & (e) as allegedly being anticipated by Edwards. The Examiner contends that Edwards discloses aerodynamically light particles for drug delivery comprising particles capable of a long-term release of a therapeutic agent, having a tap density of less than 0.4 g/cm^3 and a mass mean diameter between 5 microns and 30 microns, where the particles can be formed of biodegradable and biocompatible materials.

Without acquiescing in the rejection and without intending to abandon claimed subject matter but to expedite allowance, claim 1 has been amended to refer to a mean mass aerodynamic diameter of from about 20 to 75 microns and an envelope density of from about 0.8 to about 1.5g/cm^3. Support can be found on page 30, ll. 21-22 and page 35, ll. 19-21. Further, claim 2 has been amended to remove the limitations relating to the mean mass aerodynamic diameter and to the envelope density. Edwards, by contrast, discloses aerodynamically light particles, where at least approximately 90% of the particles have a mass mean diameter between 5 and 30 microns and where the particles have an aerodynamic

diameter of between one and three microns and a tap density of less than 0.4g/cm^3. *See* Edwards, col. 3, ll. 13-20. Edwards does not disclose or teach particles that have an envelope density of from about 0.8 to about 1.5g/cm^3, and thus, Edwards does not each and every limitation of the particulate composition set forth in claim 1. Since claims 2 and 4-8 depend from claim 1, for at least this reason, these claims are patentable over Edwards. As discussed above, claim 3 has been cancelled, making the rejection moot.

IV. The Claims are Patentable Over the Prior Art

Bellhouse

Claims 1-4 and 6-10 stand rejected as allegedly being obvious over Bellhouse. The Examiner contends that there is no significant distinction observed between Bellhouse and the instant invention because Bellhouse teaches drug-containing particles that are delivered through a needleless syringe, where the particles comprise a therapeutic agent in controlled doses to the skin and where the particles have a particle size and density in the ranges recited in the claims. Applicants respectfully traverse this rejection.

The three basic requirements for *prima facie* obviousness are: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.

As discussed above, Bellhouse does not disclose the use of a biodegradable sustained-release material as claimed. Thus, Bellhouse does not disclose or suggest all of the limitations of the particulate composition as set forth in claim 1 and the Examiner has not made out a *prima facie* case of obviousness. In addition, applicants note that the Examiner included claim 6 in this rejection, but Bellhouse does not disclose a particulate composition having a first set of particles comprising the biologically active agent in association with a first sustained-release material and a second set of particles comprising the biologically active agent in association with a second sustained-release material, where the second sustained-

release material releases the biologically active drug at a different rate than the first sustained-release material as claimed in claim 6.

Applicants further submit that the modification required to arrive at the invention claimed in claim 1 would not have been obvious at the time the invention was made to a person having ordinary skill in the art, nor would the modification required to arrive at claim 6 have been obvious at the time the invention was made to a person having ordinary skill in the art. Moreover, Bellhouse does not provide any motivation to modify the particles disclosed in the reference, nor does it convey a reasonable expectation of success in making the claimed invention. As such, claim 1 is patentable over this reference. Since claims 2, 4, and 6-10 are dependent from claim 1, for at least this reason, claims 2, 4, and 6-10 are patentable over the prior art of record. For the reasons discussed above, the rejection with respect to claim 3 is moot.

Bellhouse in view of Tice

The Examiner rejected claim 5 under 35 USC § 103(a) as allegedly being obvious over Bellhouse in view of Tice. The Examiner contends that Tice discloses the use of the specific sustained-release materials found in claim 5. The Examiner further contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the disclosed polymeric matrix materials. Finally, the Examiner states that one of ordinary skill in the art would have been motivated to make this combination because the prior art teaches that the disclosed materials are suitable for obtaining biocompatibility and biodegradability with the human body and for obtaining a slow-release formulation. Applicants respectfully submit, however, that Tice does not cure the deficiencies in Bellhouse.

Tice is not directed to a particulate composition suitable for administration to a subject by means of a needleless syringe as required by the claims. Rather, it is directed to a composition that is administered via a standard syringe and needle. *See* Bellhouse, col. 4, ll. 60-62. In addition, Tice does not disclose the use of poly(hydroxybutyrate). The prior art references, when combined, do not teach or suggest all of the claim limitations and, thus, the

Examiner has not made out a *prima facie* case of obviousness. As such, claim 5 is patentable over this combination of references.

Edwards

Claims 1-8 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Edwards. The Examiner contends that there is no significant distinction observed between the instant invention and Edwards because Edwards teaches a particulate composition comprising particles having a therapeutic agent contained therein in a controlled or long-term release formulation comprising the applicants claimed ranges of mass mean diameter and envelope density. Applicants respectfully traverse this rejection.

As discussed above, Edwards does not disclose a particulate composition with a mean mass aerodynamic diameter of from about 20 to 75 microns and an envelope density of from about 0.8 to about 1.5g/cm^3 as recited by the claims. Thus, the prior art reference does not teach or suggest all the claim limitations and the Examiner has not made out a *prima facie* case of obviousness. In addition, Edwards does not disclose the use of poly(caprolactone) or poly(hydroxybutyrate) nor does it disclose a particulate composition having a first set of particles comprising the biologically active agent in association with a first sustained-release material and a second set of particles comprising the biologically active agent in association with a second sustained-release material, where the second sustained-release material releases the biologically active drug at a different rate than the first sustained-release material as claimed in claim 6.

In addition, Edwards provides no motivation to modify the disclosed particles to arrive at the claimed invention, nor does it convey a reasonable expectation of success in making the claimed invention. The particles of the present application are designed for administration via a needleless syringe. In order for the particles to pass successfully across the skin, the particles need to be relatively large and dense so that they have the requisite momentum to penetrate the skin when fired from the needleless syringe. The application as filed makes it clear that the particles "have a structural integrity and density to survive the

action of the gas jet of the syringe and the ballistic impact with skin or mucosal tissue at high velocities." Page 3, ll. 14-17.

By contrast, the particles disclosed in Edwards need to be smaller and to have a lower density. Indeed, Edwards teaches away from the high density particles required for needleless delivery claimed by stating that "diminishing the tap density of the particles by increasing particle surface irregularities and particle porosity permits the delivery of larger particle envelope volumes into the lungs." Col. 5, ll. 54-57. The paragraph in Edwards that follows this quote refers to the fact that low tap density particles have a small aerodynamic diameter. See col. 5, ll. 60-62. Thus, special measures are taken to ensure that small, light particles are used. Such small light particles would not be suitable for use in the needleless syringe technology as recited in the claims and with which the present application is concerned.

Therefore, one of skill in the art would not be motivated to modify the particles disclosed in Edwards to arrive at the claimed invention. As such, claim 1 is patentable over this reference. Since claims 2-8 are dependent from claim 1, for at least this reason, claims 2 and 4-8 are patentable over the prior art of record. For the reasons stated above, the rejection with respect to claim 3 is moot.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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